# WARM UP PROBLEMS

CROSSROADS ACADEMY
AMC–8 PREPARATION

**Problem.** *Fin all primes that can be written both as a sum and a difference of two other primes.*

**Problem.** *How many five–digit numbers consist only of even digits, at least one of which is 2?*

*Date*: September 15, 2016.

**Problem.** *Find all pairs of digits* $(a, b)$ *such that if* $m = 10a + b$ *and* $n = 10b + a$ *then:*

$$\frac{m}{n} = 2 - \frac{b}{a}$$

**Problem.** *What is the remainder when* $1! + 2! + 3! + \cdots + 2015!$ *is divided by 100?*

**Problem.** *Find non–zero digits* $(a, b, c, d)$ *so that the sum of the four digit numbers* $\overline{abcd}, \overline{bcda}, \overline{cdab}, \overline{dabc}$ *has the maximum possible number of divisors.*

**Problem.** *Find the sum of the digits of* $(10^{2000} - 9) \cdot 10^{2015}$.